Report Date: 12 Mar 2015

Summary Report for Individual Task
551-88U-4315
Administer Railway Engineer Operations
Status: Approved

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD6 - This product/publication has been reviewed by the product developers in coordination with the Transportation School, Fort Lee, VA foreign disclosure authority. This product is releasable to students from foreign countries on a case-by-case basis.

Condition: Assigned as a Railway Specialist given the requirement to advise COCOM/Host Nation personnel on how to administer railway engineer operations, given a complete risk assessment, track inspection forms, turnout inspection checklists, work orders, operators manuals, radios, track map and qualified bridge engineer, day or night, in all weather conditions, in an operational environment. Some iterations of this task should be performed in MOPP 4.

Standard: Administer railway engineer operations without causing injury to personnel or damage to equipment.

Special Condition: None

Safety Risk: Low

MOPP 4: Sometimes

Task Statements

Cue: You have been assigned to advise COCOM/Host Nation personnel on administering railway engineer operations.

DANGER

Always be alert when working around trains. Injury, death or damage to equipment can occur from being run over or crushed between rail vehicles.

WARNING

None

CAUTION

Working around live tracks is always dangerous. Follow all safety procedures outlined in the GCOR. Install portable derail or flag protection IAW GCOR.

Remarks: None

Notes: None

Performance Steps

1. Manage Section Gang Activities in Area of Responsibility by ensuring the following are completed:

    a. Prioritize section gang work.

    b. Request Track Bulletin Form B no less than one calendar day in advance (if needed).

    c. Review, request, stockpile and/or distribute Class IV (construction) materials.

    d. Supervise PMCS.

    e. Assign tasks and conduct safety briefing.

    f. Inspect completed tasks and monitor tasks in progress.

    g. Determine additional training requirements.

    h. Investigate GCOR violations.

2. Manage Annual Track Assessments (Quality Assurance) by ensuring the following are completed:

    a. Locate Worksite.

    b. Establish On-Track Protection and set on.

    c. Inspect track structure and roadway.

        (1) Stop vehicle and inspect turnouts and crossings on foot.

        (2) Operate switches in both normal and reversed positions.

        (3) Ensure discretion is used in determining speed between crossings and turnouts.

        (4) Compare Track Information Database known conditions to physical plant.

        (5) Protect any new non-complying track conditions.

    d. Set-Off and release On-Track Protection.

    e. Back-brief Railway Section Supervisors concerning unsatisfactory track conditions and/or inspection practices observed.

3. Manage Railway Bridge Repair by ensuring the following are completed:

    a. Coordinate maintenance schedule by consulting with:

        (1) Chief Engineer.

        (2) B & B support section

        (3) Train Movement Section.

(4) ENCOM for support as needed.

b. Request Track Bulletin Form B no less than one calendar day in advance (if needed).

c. Assign tasks.

(1) Conduct Daily Safety-Job Briefing.

(2) Monitor activity.

d. Report to the Chief Engineer.

4. Manage Annual Bridge Assessments (DOT) by ensuring the following are completed:

a. Locate bridge.

b. Conduct risk assessment.

c. Conduct job briefing.

d. Inspect bridge components as directed by qualified bridge engineer.

e. Report inspection results to qualified bridge engineer.

5. Manage Triennial Bridge Inspections (DOT) by ensuring the following are completed:

a. Locate bridge.

b. Conduct risk assessment.

c. Conduct job briefing.

d. Inspect bridge components as directed by qualified bridge engineer.

e. Consult with qualified bridge engineer to determine load rating of bridge.

6. Manage Railway Division Maximum Operating Speeds and Track Capacity analysis by ensuring the following are completed:

a. Designate trackage as mainline or siding.

b. Designate a class of track for each section of main line.

c. Identify turnouts and special track work and impose speed and clearance restrictions (if needed).
Note: Example: MP 41.7 Spring Switch 50MPH straight 30MPH diverging - normal position lined for main track 1.

(1) Spring switches

(2) Rail crossings at grade

(3) Power switches

(4) Equilateral switches

(5) Tunnels

(6) Bridges

d. Calculate maximum operating speed for each section of curved track.

(1) Consider degree of curvature.

(2) Consider amount of superelevation.

(3) Consider spirals present.

(4) Consider proximity of non-mainline tracks.

e. Determine effect of railway signal system on track speeds.

f. Determine number and length of sidings and passing tracks.

g. Compile information into timetable in station or milepost order.

h. Determine track capacity.

(1) Determine number of sidings.

(2) Determine length of sidings and passing tracks.

(3) Determine length of optimum train.

i. Publish timetable and maximum train capacity.

7. Manage measuring Physical Characteristics of Right-of-Way for Clearance Determination by ensuring the following are completed:

a. Locate work site.

b. Take clearance measurements.

(1) Make vertical measurements from top of rail.

(2) Make horizontal measurements from centerline of track.

c. Determine if clearance complies with TM 5-628. Special consideration must be given for horizontal measurements in the following situations:

(1) Tangent track within 80 feet of a curve.

(2) Curved track (increase clearance by 1.5” per degree of curvature).

d. Protect track obstructions.

(1) Notify trains in vicinity.

(2) Notify dispatcher or yardmaster.

(3) Notify proper authority(ies) to have obstruction removed.

e. Submit clearance diagram to railway Chief Engineer.

8. Manage Bridge and Building (B&B) Forces within a Rail Division by ensuring the following are completed:

a. Evaluate B&B Repair activities within railway division.

(1) Conduct Quality Assurance inspection(s) of facilities.

(2) Review Annual Bridge Assessments.

(3) Review Triennial Bridge Inspections.

(4) Review average train velocity (running time) through each bridge gang area of responsibility.

(5) Review Track Inspection Database; look for longest duration uncorrected fault or deficiency.

(6) Review Track Bulletin Form A (speed restrictions).

(7) Interview gang/team members.

(8) Inspect facilities, equipment and stockpiles.

(9) Examine safety record.

b. Administer training program within railway division.

(1) Ensure compliance with annual Roadway Worker Protection training requirements (49 CFR Part 214).

(2) Determine remedial or initial training needs.

c. Adjust manpower.

(1) Evaluate need to adjust individual gang/team/individual area(s) of responsibility.

(2) Evaluate need to add or reassign individual gang/team/individual.

(3) Determine if Theater Engineer Support is needed.

d. Maintain stockpiles (Class IV).

9. Manage Railway Signal Operations within a Rail Division by ensuring the following are completed:

a. Evaluate railway signal maintainers.

(1) Conduct Quality Assurance inspection(s) of facilities.

(2) Review quarterly grade crossing signal inspections.

(3) Review average train velocity (running time) through each signal maintainer’s area of responsibility.

(4) Review Track Inspection Database; look for longest duration uncorrected fault or deficiency.

(5) Review Track Bulletin Form A (speed restrictions).

(6) Interview signal maintainers.

(7) Examine safety record.

b. Administer training program within railway division.

(1) Ensure compliance with annual Roadway Worker Protection training requirements (49 CFR Part 214).

(2) Ensure compliance with Hours of Service Act.

(3) Determine remedial or initial training needs.

c. Adjust manpower.

(1) Evaluate need to adjust signal maintainer’s area of responsibility.

(2) Evaluate need to add or reassign signal maintainer(s).

(3) Determine if Theater Signal Support is needed.

d. Maintain stockpiles (Class IV).

10. Manage Mechanized System Gangs by ensuring the following are completed:

a. Supervise Mechanized Tie Gang

(1) Locate work site.

(2) Direct movement of tie gang to worksite.

(a) Move within established working limits.

(b) Establish order of march to ensure equipment is properly sequenced to begin work.

(3) Maximize production time within track maintenance window.

(a) Exchange ties at minimum rate of 1 railroad tie every 2 minutes.

(b) Anticipate approach of trains.

(c) Clear trains through working limits only after all gang members have reported clear.

(d) Ensure completed work conforms with TM 5-628 standards.

(4) Oversee movement from work site.

(a) Tie-up gang in secure location that is accessible by maintenance personnel.

(b) Provide for fueling and maintenance of gang equipment.

(5) Report actions to Roadmaster.

b. Supervise Mechanized Steel Gang

(1) Locate work site.

(2) Direct movement of steel gang to worksite.

(a) Move within established working limits.

(b) Establish order of march to ensure equipment is properly sequenced to begin work.

(3) Maximize production time within track maintenance window.

(a) Replace rail at minimum rate of ¼ mile every 4 hours.

(b) Allow time for field welds when using CWR.

(c) Anticipate approach of trains.

(d) Clear trains through working limits only after all gang members have reported clear.

(e) Ensure completed work (track gage) conforms with TM 5-628.

(4) Oversee movement from work site.

(a) Tie-up gang in secure location that is accessible by maintenance personnel.

(b) Provide for fueling and maintenance of gang equipment.

c. Supervise Mechanized Surfacing Gang

(1) Locate work site.

(2) Direct movement of surfacing gang to worksite.

(a) Move within established working limits.

(b) Establish order of march to ensure equipment is properly sequenced to begin work.

(3) Maximize production time within track maintenance window.

(a) Surface and dress track at minimum rate of 5 feet per minute.

(b) Anticipate approach of trains.

(c) Clear trains through working limits only after all gang members have reported clear.

(d) Ensure completed work conforms with TM 5-628.

(4) Oversee movement from work site.

(a) Tie-up gang in secure location that is accessible by maintenance personnel.

(b) Provide for fueling and maintenance of gang equipment.

(5) Report to Roadmaster.

11. Manage Work Train (Ballast, Steel, Tie, OTM, Reclaim, Ditching) by ensuring the following are completed:

a. Locate work site.

b. Direct movement of work train and equipment to worksite.

(1) Move within established working limits.

(2) Establish order of march to ensure equipment is properly sequenced to begin work.

c. Maximize production time within track maintenance window.

(1) Recover / Distribute Class IV materials in an efficient and safe manner.

(2) Anticipate approach of trains.

(3) Clear trains through working limits only after all gang members have reported clear.

(4) Ensure distributed materials do not pose a hazard to train operations.

(5) Ensure recovered materials are secured for movement.

d. Oversee movement from work site.

(1) Tie-up work train in secure location that is accessible to maintenance personnel.

(2) Provide for fueling and maintenance of material handling equipment.

e. Report to Roadmaster.

12. Manage Track Welding by ensuring the following are completed:

a. Supervise continuous welded rail.

(1) Ensure a minimum of 13 feet is maintained between welds or joints.

(2) Ensure the method of welding is the preheated thermite process or other approved procedures.

b. Supervise welding rails with existing bolt holes.

(1) Ensure joint bars are used on welded rail when there are existing bolt holes.

(2) Ensure joint bars are used if there are bolt holes in either piece of rail being used in new or replacement work.

(3) Ensure existing rail holes (not at the ends), such as bolt holes and old gage rod holes are maintained as is, provided there are no other potentially serious defects in the immediate area.

c. Report repair to Track Master.

13. Manage Vegetation Control Program by ensuring the following are completed:

a. Assess vegetation within railway division.

(1) Consolidate vegetation information from track inspection forms.

(2) Consult with track inspectors.

(3) Consult with tactical operations commanders.

(4) Consider fire hazards.

b. Develop and implement vegetation control plan focusing on following areas:

(1) Manual removal.

(2) Burning.

(3) Use of herbicides.

(4) Use of contractors.

(5) Time of year (winter, spring, summer or fall).

(6) Section workloads.

c. Assess effectiveness of vegetation control plan and adjust plan until entire railway division is within standard (TM 5-628).

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Mark each performance measure either GO or NO-GO. The Soldier must complete all steps to receive a GO for each measure. All measures must be marked GO to receive an overall GO on the task. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

Evaluation Preparation: Ensure that all materials required to perform the task are available. Tell the Soldier that he/she will be evaluated on administering railway engineer operarions.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Managed Section Gang Activities in Area of Responsibility.			
2. Managed Annual Track Assessments (Quality Assurance).			
3. Managed Railway Bridge Repair.			
4. Managed Annual Bridge Assessments (DOT).			
5. Managed Triennial Bridge Inspections (DOT).			
6. Managed Railway Division Maximum Operating Speeds and Track Capacity analysis.			
7. Managed measuring Physical Characteristics of Right-of-Way for Clearance Determination.			
8. Managed Bridge and Building (B&B) Forces within a Rail Division.			
9. Managed Railway Signal Operations within a Rail Division.			
10. Managed Mechanized System Gangs.			
11. Managed Work Train (Ballast, Steel, Tie, OTM, Reclaim, Ditching).			
12. Managed Track Welding.			
13. Managed Vegetation Control Program.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual	No	No
	GCOR	GCOR General Code of Operating Rules	No	No
	TM 5-627	MAINTENANCE OF TRACKAGE {NAVFAC MO-103;AFM 91-33}	No	No
	TM 5-628	RAILROAD TRACK STANDARDS {AFR 91-44}	No	No
2.	GCOR	GCOR General Code of Operating Rules	No	No
5.	AR 420-72	SUPERCEDED BY AR 420-1 Surfaced Areas, Bridges, Railroad Track and Associated Appurtenances	No	No
5.	GCOR	GCOR General Code of Operating Rules	No	No
5.	TM 5-600	BRIDGE INSPECTION, MAINTENANCE, AND REPAIR {AFJPAM 32-1088}	No	No
5.	TM 5-627	MAINTENANCE OF TRACKAGE {NAVFAC MO-103;AFM 91-33}	No	No
5.	TM 5-628	RAILROAD TRACK STANDARDS {AFR 91-44}	No	No

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.
AR 200-1 delineates TRADOC responsibilities to integrate environmental requirements across DOTMLPF and ensures all training procedures, training manuals, and training doctrine includes sound environmental practices and considerations. The Army's environmental vision is to be a national leader in environmental and natural resource stewardship for present and future generations as an integral part of all Army missions. Environmental protection is never completed. Continuously be alert to ways to protect our environment and reduce waste.

Leaders must ensure that their unit has an active and strong environmental program. They must understand the laws and know what actions to take. Leaders bring focus, direction, and commitment to environmental protection. Commanding officers should ensure the following environmental programs are in place and are being maintained:
-Hazardous materials program.

-Hazardous waste program.
-Hazardous communications program.
-Pollution prevention and hazardous waste minimization recycling program.
-Spill prevention and response plan program.

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.
All operations will be performed to protect and preserve Army personnel and property against accidental loss. Procedures will provide for public safety incidental to Army operations and activities and safe and healthful workplaces, procedures, and equipment. Observe all safety and/or environment precautions regarding electricity, cable, and lines. Provide ventilation for exhaust fumes during equipment operation and use hearing protection when required IAW AR 385-10, the Clean Air Act (CAA) and the CAA amendments, and the OSHA Hazard Communication standard.

Accidents are an unacceptable impediment to Army missions, readiness, morale, and resources. Decision makers at every level will employ risk management approaches to effectively preclude unacceptable risk to the safety of personnel and property affiliated with this task.
(a) Take personal responsibility.
(b) Practice safe operations.
(c) Recognize unsafe acts and conditions.
(d) Take action to prevent accidents.
(e) Report unsafe acts and conditions.
(f) Work as a team.

Prerequisite Individual Tasks : None

Supporting Individual Tasks : None

Supported Individual Tasks : None

Supported Collective Tasks : None